



## Houghton Mifflin Harcourt *Holt McDougal Biology* Program Study Description

### INTRODUCTION

In an ever-changing world the demand for quality science education continues to grow. High school science educators are challenged with preparing students not only for future studies in the sciences, but also to become scientifically literate adults. Quality biology instruction incorporates exciting new discoveries in the field and engages students to interact with the world around them.

Houghton Mifflin Harcourt understands the importance of providing biology educators with instructional materials that are up-to-date, effective and easy to implement. Therefore, it has contracted with Magnolia Consulting, LLC, an external, independent consulting firm with educational research and evaluation expertise, to conduct an efficacy study of its *Holt McDougal Biology* program. (Additional information about Magnolia is available at [www.magnoliaconsulting.org](http://www.magnoliaconsulting.org)).

Houghton Mifflin Harcourt's *Holt McDougal Biology* is a state-of-the-art program that encompasses the most current biological research and gives teachers flexible, timesaving tools to help students connect to the living world of biology. With this program, students are able to master biology standards through a variety of multi-media tools, classroom materials, and leveled content. Specifically, this classroom-based program includes a student text that uses a clear, approachable writing style, engaging visuals, and short sections designed to support student learning and comprehension. It also includes a media gallery in which teachers can access thousands of graphics, videos, and animation to create slide shows that bring classroom biology presentations to life. *Holt McDougal Biology* provides teachers with customized assessments and tools to differentiate instruction and includes an online interactive component involving virtual labs, games, quizzes, and animated activities that help students build knowledge, stay engaged, and meet testing standards. In addition, the program provides access to BioZine, an online magazine that connects students directly to the latest biology news, and allows students to explore cutting edge issues, technology, and careers in biology.

### STUDY PURPOSE AND DESIGN

The overall purpose of this study is to measure the impact of the *Holt McDougal Biology* curriculum on student learning and interest in high school general biology. This study also seeks to assess teachers' use and perceptions of the program.

During the 2011-2012 school year, Magnolia Consulting will implement a randomized controlled trial in which evaluators will randomly assign teachers to either a treatment group (in which teachers will implement *Holt McDougal Biology* with their students) or a control group (in which teachers will implement only their regular classroom materials). Evaluators will conduct this national efficacy study across approximately 10 geographically distributed school districts. Within each school district, evaluators will recruit schools with at least two high school general biology classes willing to participate in this study.

Throughout the study period, evaluators will collect data from all participating teachers and students. The data collected will yield information regarding the characteristics of teacher and student study participants, teachers' use and perceptions of materials, student science achievement, and students' interest in and attitudes toward biology. Evaluators will use the following data collection procedures for this study:

- ◆ One site visit (spring 2012) for observations (40 minutes each) and interviews (20 minutes each) with participating treatment teachers and a sample of control teachers.
- ◆ Monthly online treatment and control teacher implementation logs (10-15 minutes completion time per log)
- ◆ Science subtest of the *Stanford Achievement Test*, Tenth edition (SAT-10), a group-administered student assessment (administered to all students twice a year to assess student achievement in science; approximately 25 minutes completion time per administration)
- ◆ Biology content assessment, a group-administered student assessment (administered to all students twice a year; 25-30 minutes to complete)
- ◆ Student science interest survey, a group-administered student survey (administered to all students at the beginning and end of each year; approximately 15 minutes completion time per administration)

Teachers will administer the *SAT-10*, biology content assessment and student interest survey to all treatment and control students to measure student learning and interest in science. Magnolia Consulting will coordinate the purchase, delivery and scoring of the student assessments.

## **PARTICIPATION**

Evaluators will expect participating teachers to fulfill all aspects of the study requirements as a condition of study participation. Prior to the 2011-2012 school year, Magnolia Consulting and Houghton Mifflin Harcourt will facilitate a study orientation for all participating teachers as well as *Holt McDougal Biology* training for participating treatment teachers. Throughout the study period, treatment teachers will implement the *Holt McDougal Biology* program, and control teachers will implement their regular curriculum materials. Because participant involvement plays an essential role in obtaining quality data, it is imperative that teachers complete all study-related data collection activities.

Before the study begins, participating teachers will sign an informed consent form describing the study requirements, expectations, and responsibilities. *Magnolia Consulting will adhere to district processes and requirements for human subjects review, and always protects participant confidentiality and anonymity.*

## **STUDY BENEFITS**

Schools and educators who participate in the study of Houghton Mifflin Harcourt's *Holt McDougal Biology* program will have the opportunity to participate in a rigorous study that will add to the research evidence regarding the efficacy of *Holt McDougal Biology*. It will also allow teachers to share feedback about biology curricula, which will benefit their own students as well as other students nationwide.

For their full participation, participating treatment teachers will receive the *Holt McDougal Biology* materials and training free of charge as well as a \$300 Houghton Mifflin Harcourt voucher. Control teachers will receive a \$300 Houghton Mifflin Harcourt voucher, one classroom worth of *Holt McDougal Biology* materials (for up to 30 students), and an in-service training the year after the completion of this study. School level site coordinators will receive a \$300 Houghton Mifflin Harcourt voucher. Houghton Mifflin Harcourt vouchers can be used to buy products in any subject area from Houghton Mifflin Harcourt.

Magnolia Consulting evaluators appreciate the careful consideration of the effort involved in participating in a curriculum efficacy study. We understand the demands on participants' time and the realities of conducting studies within schools while abiding by the highest possible research standards. If you have any questions about this study, please contact Dr. deKoven Pelton (434.962.9059 or [deKoven@magnoliaconsulting.org](mailto:deKoven@magnoliaconsulting.org)).

[To complete a study application, please click here.](#)